

REMARKS

Claims 1, 3-13 and 17-24 are pending in this application. Claims 3, 21 and 22 are currently withdrawn. By this Amendment, claim 13 is amended, claim 14 is canceled without prejudice to or disclaimer of the subject matter recited therein, and claims 23 and 24 are added. No new matter is added. Reconsideration of the application is respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representatives by Examiner Schillinger in the December 6, 2006 telephone interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action makes final the Election of Species Requirement. Applicants note that claim 3 depends from claim 1. Thus, rejoinder of at least claim 3 is respectfully requested upon allowance of claim 1.

The Office Action rejects claims 1, 4-14, 17-20 under 35 U.S.C. §102(b) over U.S. Patent No. 5,477,065 to Nakagawa et al. (Nakagawa). This rejection is respectfully traversed.

Independent claim 13 recites a heterogeneous device comprising a plurality of heterogeneous circuit devices defined in the same substrate by an implantation and including at least one complementary metal oxide semiconductor transistor and at least one double-diffused metal oxide semiconductor transistor, and a photodiode defined in the same substrate by the same implantation. These features are described in the specification at, for example, paragraph [0054]. Some of these features were also recited in canceled claim 14.

Under item 13 on page 5, the Office Action alleges that Nakagawa discloses a plurality of heterogeneous circuit devices defined in the same substrate in Fig. 13A. Then, under item 14, the Office Action alleges that Nakagawa discloses the plurality of heterogeneous circuit devices comprising a CMOS and DMOS in Fig. 12D.

However, as discussed during the interview, Nakagawa discloses at col. 3, lines 40-46 that the devices shown in Figs. 12D and 13A are of different embodiments. Nakagawa does

not teach or suggest providing the devices shown in Fig. 13A and the devices shown in Fig. 12D on the same substrate by the same implantation process. In particular, as discussed during the interview, Nakagawa discloses that an insulation film 38 is provided under the CMOS as shown in Fig. 12D. On the other hand, for the embodiment shown in Fig. 13A, an insulation film 57 is provided above the photodiode PD. Therefore, in Nakagawa, if the CMOS and the photodiode are to be provided on the same substrate, the photodiode PD must be formed by an implantation process prior to the formation of an insulation film, and then the CMOS must be formed on the insulation film by another implantation process.

Thus, Nakagawa does not teach or suggest a heterogeneous device comprising a plurality of heterogeneous circuit devices defined in the same substrate by implantation and including at least one complementary metal oxide semiconductor transistor and at least one double-diffused metal oxide semiconductor transistor, and a photodiode defined in the same substrate by the same implantation, as recited in claim 13. Thus, Applicants respectfully submit that claim 13 is patentable over Nakagawa.

Dependent claims 1, 4-12 and 17-20 are allowable at least for their dependence on claim 13, as well as for the additional features they recite. Therefore, withdrawal of the rejection is respectfully requested.

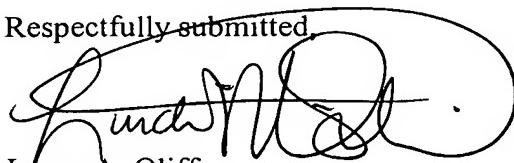
New claim 23 recites that the plurality of heterogeneous circuit devices and the photodiode is formed on the same plane. This feature is shown in Figs. 28-32, for example. Claim 23 is allowable at least for its dependence on claim 13, as well as for the additional features it recites. In particular, as discussed during the interview and as discussed above, Nakagawa discloses that the CMOS and photodiode PD are provided on the other side of the insulation film. Thus, in Nakagawa, the CMOS and the photodiode PD are provided in different planes. Thus, Nakagawa teaches away from the plurality of heterogeneous circuit devices and the photodiode being in the same plane.

New claim 24 recites that the substrate includes a silicon-on-insulator wafer having a single-crystal-silicon layer, a substrate and an insulator layer therebetween, and that the plurality of heterogeneous circuit devices and the photodiode are formed above the insulation layer. This feature is partially recited in claim 6 and supported by Figs. 28-32. Claim 24 is allowable at least for its dependence on claim 13, as well as for the additional features it recites. In particular, as discussed during the interview and the above, Nakagawa discloses that the photodiode PD is formed under the insulation film 57. Thus, Nakagawa does not teach or suggest a silicon-on-insulator wafer having a single-crystal-silicon layer, a substrate and an insulator layer therebetween, and that the plurality of heterogeneous circuit devices and the photodiode are formed above the insulation layer.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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